White Paper Report

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Project Director: Charlene Akers (cakers@stearns-museum.org)

Institution: Stearns History Museum

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Environmental Systems for the Archives of the Stearns County Historical Society

Project Director: John Decker/Glenn Liesch

Grantee Institution: Stearns History Museum

September 30, 2013

Narrative

The Stearns History Museum's National Endowment for the Humanities Sustaining Cultural Heritage Collections Preservation and Access grant focused on upgrading the environmental systems for the museum's archives. This is phase two of three phase upgrade to the SHM's overall environmental system. In 2010, SHM received a grant through the Minnesota Historical Society's Legacy grant program to have an assessment of SHM's heating, ventilating and air conditioning systems. This assessment was done by Rebecca Ellis of Questions and Solutions Engineering, Inc. This assessment identified the HVAC needs of SHM and also divided the project upgrades into three manageable phases. Phase I replaced SHM's boilers and upgraded the KMC controls for controlling the HVAC system in SHM. Phase II was to install new and separate environmental controls for the archives area and is the phase which this grant is funding. Phase III, a project which will be completed in the future, will upgrade the museum's main air distribution facilities.

The museum bided out the project as a design build for the installation of the HVAC system for the archives. The Stearns History Museum solicited bids from three companies and received two bids. McDowall Comfort Management and its associated subcontractors were chosen for the project and Facilities Manager Glenn Liesch worked with McDowalls throughout the project to insure they met the specifications needed. A Liebert Challenger 3000 environmental control system along with the following equipment were installed:

- ICOM control – based temperature and humidity controls with auditory and visual alarms
- Digital scroll compressor with crankcase heater
- Infrared humidifier
- SCR modulating electric reheat
- Smoke Detector
- Dual float condensate pump
- Outdoor air cooled condensing unit with Lee-Temp head pressure control to minus 30 degrees
- Modbus Card Liebert software for monitoring
- Ductwork with Glide-Pak MERV 14 air filtration section on supply
- Condensation drain piping
- Added electrical wiring to provide power for the unit

The original project was slated to begin October 1, 2012 and completed February 28, 2013. SHM received an extension due to weather. The new project dates were February 1, 2013 to June 30, 2013 with monitoring of the HVAC system for the next eleven weeks. Winter and spring were unusually cold, even for Minnesota mandating the contractors push back the installation times. Staff began monitoring the system June 26 to insure it maintains museum

standards of 68 degrees Fahrenheit plus/minus 2 degrees and 45% Relative Humidity plus/minus 5%. See Figure 1 for readout results.

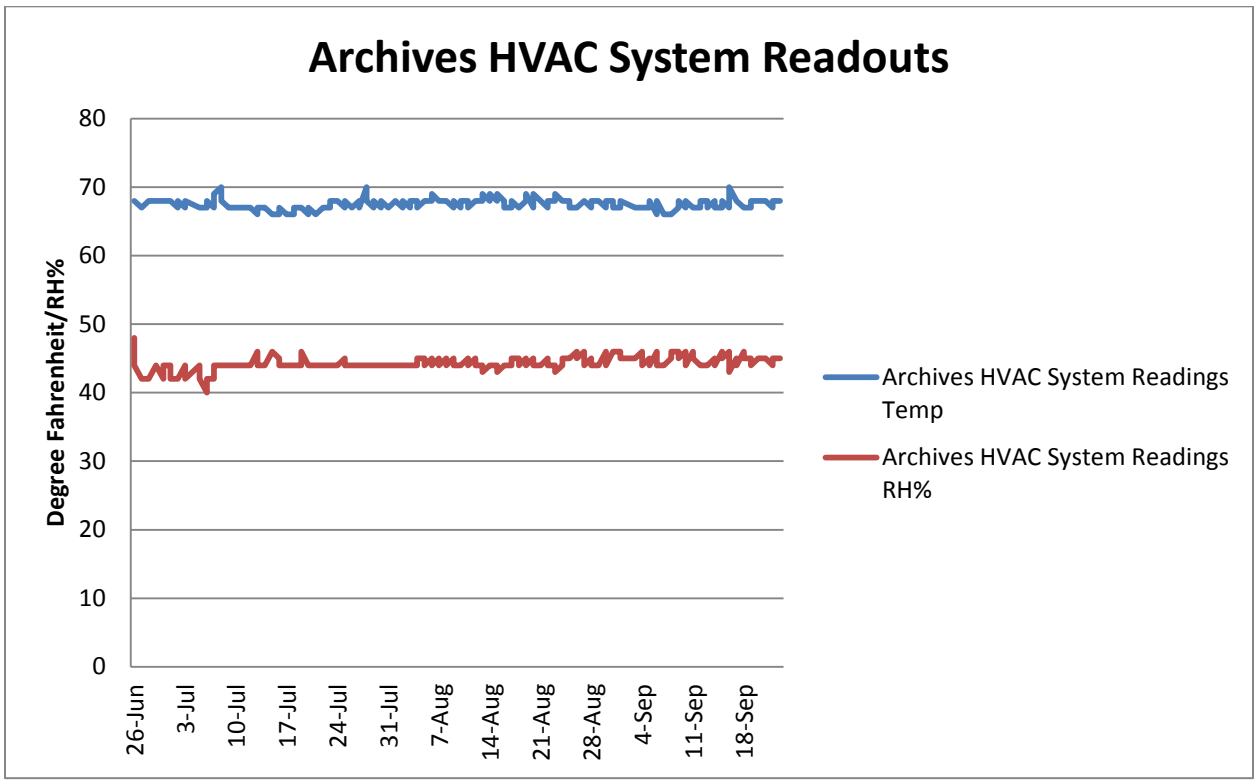

Figure 1: Archives HVAC System Readouts

The main purpose of this project was to stabilize the environmental systems for the archival storage area of the museum. The archival storage area contains 500,000 photographic images, including the Myron Hall Photograph Collection, a *St. Cloud Times* photographer from 1937 to 1976, 1,500 linear feet of archival material, Stearns County vital records, 1,900 oral history tapes and other archival material. Previously, archival storage area temperatures averaged in the low 70's with 70% relative humidity. Fluctuation for the temperature ranged from 60 degrees Fahrenheit to the mid 70's and relative humidity fluctuated from 30 to 82%. These extreme fluctuations can harm the collections causing desiccation of archival material. As Figure 1 shows, the new HVAC system has stabilized both the temperature and relative humidity in the archives storage. The stabilization of temperature will help with the preservation of important Central Minnesota historical resources and allow staff and researchers access to these materials for years into the future.

There was no direct audience participation in the project. Our main audience comes from the stabilization of resources used by staff and the 8,000 plus researchers who visit the archives every year. These researchers consist of such groups as genealogists, historians, and students. The Stearns History Museum strives to increase access to and preservation of the collections so that all interested parties can continue to utilize the important historical resources in the area. We

also hope that other institutions who are interested in conducting projects like this one will be able to use our project as a model to help them in their project planning stages.

Lessons Learned/Evaluation

One of the important lessons we learned through this project was the importance of project management. It is necessary to develop a plan, working with knowledgeable staff and the contractors who are participating in the project. Inclement weather can disrupt project timelines and it also necessary to allow for such disruptions.

Another important lesson is the importance of working with knowledgeable contractors who understand the stringent requirements of the museum field. McDowall Comfort Systems provided excellent design and installation services which helped us greatly in bringing the project to a successful conclusion.